CHEMICAL ENERGETICS

4 Hydrogen can be manufactured from methane by steam reforming. **0620/42/M/J/16-Q4**

$$CH_4(g) + H_2O(g) \rightleftharpoons CO(g) + 3H_2(g)$$

The reaction is carried out using a nickel catalyst at temperatures between 700 °C and 1100 °C and using a pressure of one atmosphere.

The forward reaction is endothermic.

(a) What is meant by the term *catalyst*?

.....

..... [2]

(b) Suggest **two** reasons why a temperature lower than 700 °C is not used.

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(c) Suggest **one** advantage of using a pressure greater than one atmosphere.

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(d) Suggest **one** disadvantage of using a pressure greater than one atmosphere.

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